

Work Order ID: 61763

Thursday, September 02, 2010 11:17:55 AM

Page 1

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00

Required Date: 9/20/2010 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Run Start

Approvals: Process Plan: *H*

Date: *10-9-02* Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr | Revision Nbr | | | | | | | | |
| D350-748-141 | Rev E | | | | | | | | |

100

0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-101

CHG001

8/26/11

for BG 11-01-28

110

0.00



CNC Bend 1

BENDING MACHINE - CROSSTUBES

Memo

0.00

CNC Delta 100 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

DP

10-11-22

120

0.00



QC

QC15- Crosstube Dimensional Check

Memo

0.00

Quality Control

8/26/12

80

Pto ->

| W/O: 61763 | | WORK ORDER CHANGES | | | | | |
|------------|------|--|----|----------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| 10.12.09 | 141 | - DEFLECT TUBE TO 3500 ^{lb} FOR 1 MINUTE - RE-MEASURE HEIGHT & WIDTH | CP | 10.12.09 | 1 | CP 10.12.09 DSI 042 | S 11/1/29 |
| 10.12.09 | 142 | NDT TUBE FOLLOWING DEFLECTION TEST | | | | CP 10.12.09 DSI 042 | S 11/1/29 |

Part No: D350-748-101 PAR #: _____ Fault Category: no tube NCR: Yes No DQA: 2 Date: 11.02.07
 Resolution: Accepted Disposition: use as is QA: N/C Closed: ✓ Date: 11/12/07

| NCR: 61763 | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------------|------|---|-----------------------------|---------------------------------|-----------------|---------------------------|---------------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| 10.11.22 | 110 | Height is 0.260" below nominal, 0.140" under tol. P.C. process | CP 10.11.22 DSI 042 | OK, Acceptable. | SAD 10-11-22 | S 10/11/22 | CP 10.11.22 DSI 042 | S 10/11/22 |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID: 61763

Thursday, September 02, 2010 11:17:55 AM



Page 2

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

125



HandFXtube

Hand Finishing Crosstubes

Memo

Stress relief

Heat treat crosstube as per QSI010 4.3

0.00

0.00

SAD
KSD

10-11-22

3pm to 7pm

127



QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.00

8/10/12/24



N/A
change
made

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID' 61763

Thursday, September 02, 2010 11:17:55 AM



Page 3

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

130

0.00



Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs,
Set-up drill table as per QSI 010

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-141

4-Remove all marks from tube within limits of D350-748-141

5- Apply a light coat of LPS3 on the interior of tube

Batch: _____

SAD
10-11-29
→ SAD 10-11-30

See
Attached E-mail →

140

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

8/10/12/13

P10 →
on First PQR

outsance - VDT issue P10 to acuen

P10 13/13

CY10/12/09 ①

CY10/12/09 ①

Back: ensure copy of VDT results used
attached to W/O.

| W/O: 61763 | | WORK ORDER CHANGES | | | | | |
|------------|------|---|----|----------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| 10/12/09 | 175 | NPT per QSI 038 before + after load testing per eng. this time only P/O: 13113 | CZ | 10/12/09 | 1 | U 10/12/09 | |
| | | rec'd + inspect | U | 10/12/09 | 1 | U | |

Part No: D350-748-101 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID' 61763

Thursday, September 02, 2010 11:17:55 AM

Page 4

Item ID: D350-748-101

Accept

Revision ID:

Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00

Required Date: 9/20/2010 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

150 Outsource process-Cadplate per QSI017 4.1.9.1 0.00



Outsource3

Outsource process - Cad plate

Memo

Issue P/O: 13128
Stress relief at 375° for 5 hours
Magnetic Particle Inspect per ASTM E1444
Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2
Embrittle relief at 375° for 8 hours, Chromate Treat
Possible Supplier: Southwest United Industries
Ensure Certificate of Conformity is attached

0.00

CL 10/12/14 ①

160 Receive & Inspect for Damage & Mat'l Certs 0.00



Packaging

Packaging

Memo

Ensure certificate of conformity is attached

0.00

CL 11/4/18 ①

170 QC5- Inspect part completeness to step on W/O 0.00



QC

Quality Control

Memo

Span = 81.875

twist = 0.151"

0.00

S 11/12/14 19 Nov 124

P/O: 13367

issue P/O: accen LPI per ASTM 1417 level 2a LPT inspection as per QSI 038

rec'd + inspect for damage + attached C+C to W/O

CL 11/01/26 ①
P/O 11/26 ①

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 61763

Thursday, September 02, 2010 11:17:55 AM

Page 5

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00

Customer:




Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 180 | | 0.00 | | | | | | | |
|  | SprayPaint | | | | | | | | |
| SprayPaint | Memo | 0.00 | | | | | | | |
| Spray Painting | 1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2 | | | | | | | | |
| 190 | | 0.00 | | | | | | | |
|  | QC14- Inspect Spray Paint | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | Then, Wrap in plastic bag to protect from scratches | | | | | | | | |
| 200 | | 0.00 | | | | | | | |
|  | Crosstubes | | | | | | | | |
| Crosstubes | Memo | 0.00 | | | | | | | |
| Crosstubes | 1-Install Ground wire Insert, then insert screw and washer 2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS | | | | | | | | |

25 11-01-26

mm 11 01 27 (1)

mm 11 01 28 (1)

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 61763

Thursday, September 02, 2010 11:17:55 AM

Page 6

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00

Customer:




Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|------------------|
| 210  QC Quality Control | QC5- Inspect part completeness to step on W/O Memo | 0.00 0.00 | | | | | | | <i>Sulobez</i> |
| 220  Packaging Packaging | Pick Kit Memo | 0.00 0.00 | | | | | | | <i>11/1/288P</i> |
| 230  QC Quality Control | QC4- 100% Inspect kits for completeness Memo | 0.00 0.00 | | | | | | | <i>Sulobez</i> |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 61763

Thursday, September 02, 2010 11:17:55 AM



Page 7

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 240 | Packaging | 0.00 | | | | | | | |
| | Packaging | | | | | | | | |
| | Packaging | | | | | | | | |
| | Memo | 0.00 | | | | | | | |
| | Identify and pack for shipping as per PPP D350-748-101 | | | | | | | | |
| | Location: 102 | | | | | | | | |
| | PPP Rev: B | | | | | | | | |
| 250 | QC21- Final Inspection - Work Order Release | 0.00 | | | | | | | |
| | QC | | | | | | | | |
| | Quality Control | | | | | | | | |

11/2/02 SP

11/02/02 AJ

PL 11-02-1
①

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Thursday, September 02, 2010 11:18:00 AM

Page 1

Work Order ID: 61763

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd





Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 06-07-05 JLM
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ
 IPP Rev:C Rev B 07-11-15 DD
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F
 10.08.04 added QSI010 4.3 DD verf:EC

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D350-748-141TRN  | | Manufactured | No | | | 110 | Each | 0.0000 | 1 | 1 | | | |
| Crosstube Turning Detail | | | | | | | | | | | | | |
| ALS4-1032-225  | | Purchased | No | | | 200 | Each | 5,336.000 | 1 | 1 | | | |
| Insert | | | | | | | | | | | | | |
| <div>Location</div> <div>PK011</div> <div>110768</div> <div>Loc Qty</div> <div>5336</div> <div>5336</div> <div>Loc Code</div> | | | | | | | | | | | | | |
| AN960JD10  | NAS1149D0363J | Purchased | No | | | 200 | Each | 6.0000 | 1 | 1 | | | |
| Washer | | | | | | | | | | | | | |
| <div>Location</div> <div>ST</div> <div>107715</div> <div>Loc Qty</div> <div>6</div> <div>6</div> <div>Loc Code</div> | | | | | | | | | | | | | |
| D2856-400  | | Manufactured | No | | | 200 | f | 313.4060 | 1.181 | 1.243158 | | | |
| Abraison Strip | | | | | | | | | | | | | |
| <div>Location</div> <div>ST403</div> <div>56626</div> <div>59920</div> <div>Loc Qty</div> <div>313.4060421</div> <div>97.4060421</div> <div>216</div> <div>Loc Code</div> | | | | | | | | | | | | | |

B 61135

 ①

DP 10-11-22

11-01-28

11-01-28

11-01-28

B# 116025

B# 63735

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Thursday, September 02, 2010 11:18:00 AM

Page 2

Work Order ID: 61763

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

D3502-1

Manufactured No

200

Each

54.0000

2

2



Support



m 11-01-28

Location

Loc Qty

Loc Code

ST063

12

61206

12

ST066

42

~~50287~~

38

52903

4

MS21920-20

Purchased

No

200

Each

77.0000

2

2



Clamp (per MIL-DTL-8783C)

m 11-01-28

Location

Loc Qty

Loc Code

LG

77

112624

6

114687

21

114779

24

115057

26

MS27039-1-10

Purchased

No

200

Each

126.0000

1

1



Screw

m 11-01-28

Location

Loc Qty

Loc Code

ST291

126

112794

26

112940

100

Thursday, September 02, 2010 11:18:00 AM

Shop Packet Print

Page 2

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Page 3

Thursday, September 02, 2010 11:18:00 AM

Work Order ID: 61763

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

AN4-41A
Bolt

Purchased No

220 Each

274.0000 8



8
11/16/10

Location

Loc Qty

Loc Code

ST337

40

ST360

234

111424

4

113359

30

114941

100

115108

100

AN4-6A

Bolt

Purchased No

220 Each

1,418.000 16



16
11/12/10

Location

Loc Qty

Loc Code

ST356

1418

112933

96

113149

19

114523

2

114615

1

114941

500

115108

300

115457

500

16

AN5-32A

Bolt

Purchased No

220 Each

196.0000 4



4

11/5698 11/12/10

Location

Loc Qty

Loc Code

ST340

196

113121

4

114056

42

114405

50

115016

50

115108

50

Thursday, September 02, 2010 11:18:00 AM

Shop Packet Print

Page 3

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Page 4

Thursday, September 02, 2010 11:18:00 AM

Work Order ID: 61763

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

AN960JD416 NAS1149D0463J Purchased No

220

Each

0.0000

32

32



Washer



M116304 11/1/28 SL

AN960JD516 NAS1149D0563J Purchased No

220

Each

34.0000

8

8



Washer



M114742 11/1/28 SL

Location

Loc Qty

Loc Code

ST

34

103694

18

107534

12

109287

4

D3500-1 Manufactured No

220

Each

30.0000

4

4



Saddle



11/1/28 SL

Location

Loc Qty

Loc Code

ST424

30

55605

2

59422

16

60489

12

D3501-1 Manufactured No

220

Each

394.0000

16

16



Bushing



1361837 11/1/28 SL

Location

Loc Qty

Loc Code

ST066

394

45402

15

45918

112

48268

67

53779

100

61196

100

15

Thursday, September 02, 2010 11:18:00 AM

Shop Packet Print

Page 4

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Page 5

Thursday, September 02, 2010 11:18:00 AM

Work Order ID: 61763

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

220

Each

2,379.000

24

24



Nut



11/16/548 11/1/28

Location

Loc Qty

Loc Code

ST300

2379

113422

68

114523

28

114718

16

114784

347

115108

1920

MS21042L5

Purchased

No

220

Each

633.0000

4

4



Nut



11/1/28 sf

Location

Loc Qty

Loc Code

ST139

133

114813

133

ST300

500

115156

500

Thursday, September 02, 2010 11:18:00 AM

Shop Packet Print

Page 5

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

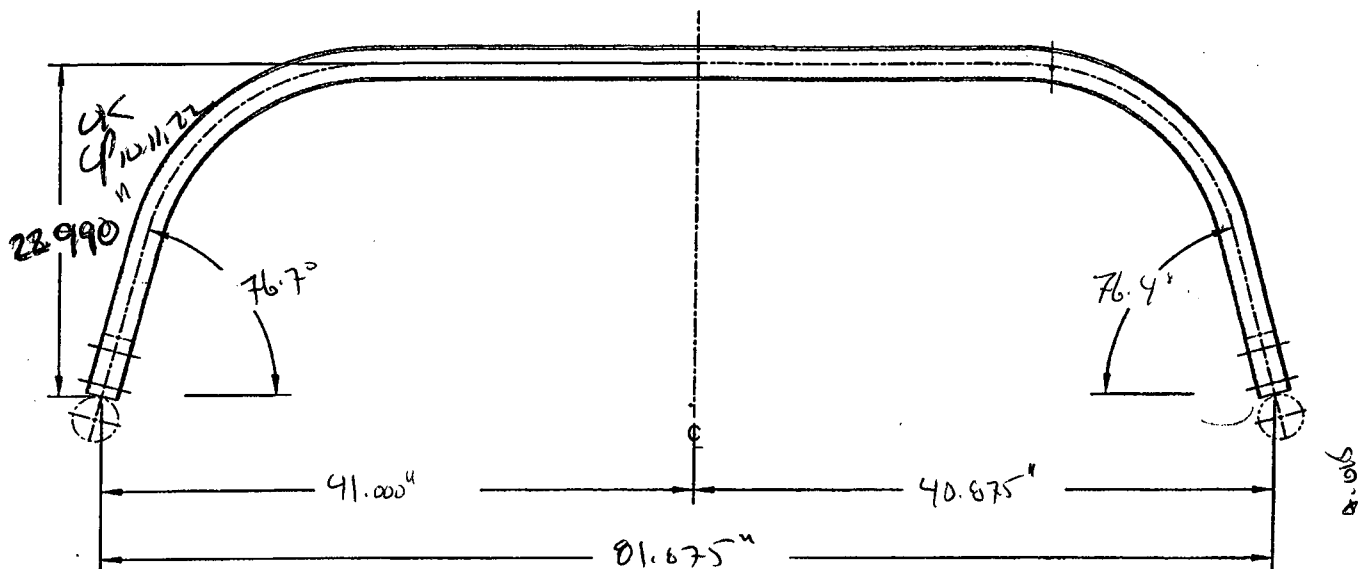
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | ✓ | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

| | | | |
|---|--|--------------|--------------|
| DART AEROSPACE LTD | | Work Order: | 41763 |
| Description: Crosstube High Fwd (AS350/355) | | Part Number: | D350-748-101 |
| Inspection Dwg: D350-748-141 Rev: E | | Page 1 of 1 | |

For step # 120

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 23.13 | 23.37 |
| 1/2 Span | 40.78 | 41.02 |
| Angle | 75 | 77 |
| Total Span | 81.56 | 82.04 |



| Comments |
|--|
| twist = 0.109 " 0.109" OK P10.11.22 |
| |
| |

| | |
|-----------------|----------|
| QC15 Inspection | 8 |
| Date | 10/14/22 |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------------|------------|----------|
| A | 07.02.06 | New Issue | KJ/JM | |
| B | 10.08.23 | Dwg Rev updated | KJ | |

Dart Aerospace Ltd

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

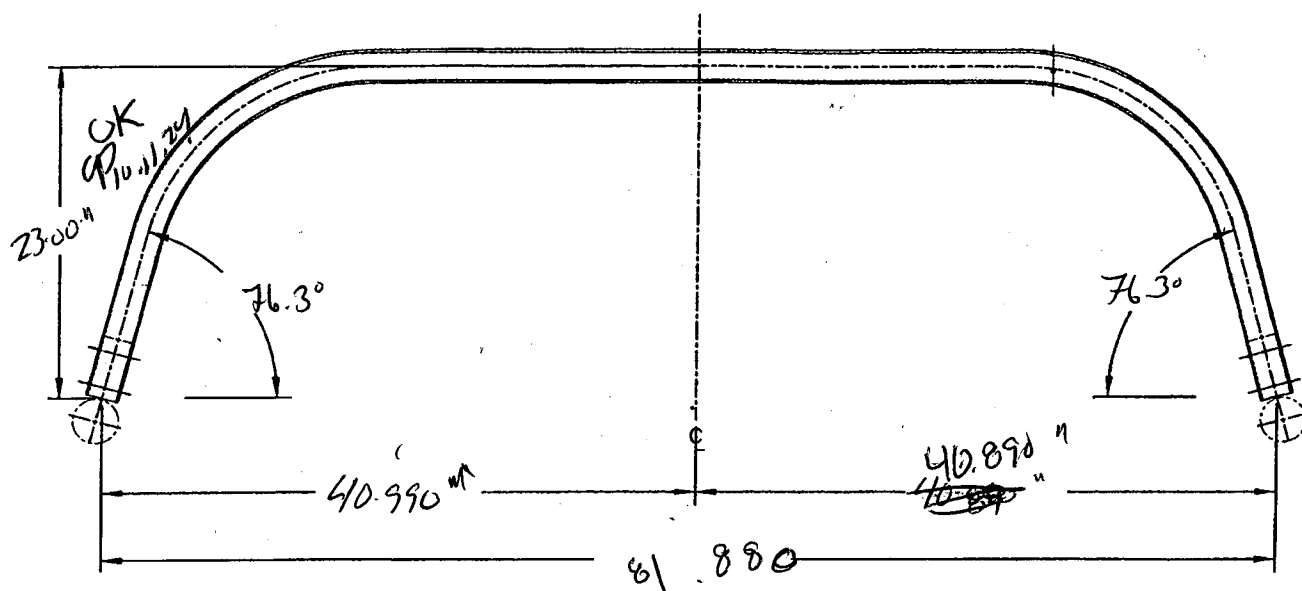
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

| | | | |
|---|--|--------------|--------------|
| DART AEROSPACE LTD | | Work Order: | |
| Description: Crosstube High Fwd (AS350/355) | | Part Number: | D350-748-101 |
| Inspection Dwg: D350-748-141 Rev: E | | Page 1 of 1 | |

For step # 102

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 23.13 | 23.37 |
| 1/2 Span | 40.78 | 41.02 |
| Angle | 75 | 77 |
| Total Span | 81.56 | 82.04 |



| Comments |
|----------------------------|
| twist = .093" OK 10.11.24 |
| - Remains after stress R/c |

| | |
|-----------------|----------|
| QC15 Inspection | 8 |
| Date | 10/16/24 |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------------|------------|----------|
| A | 07.02.06 | New Issue | KJ/JM | |
| B | 10.08.23 | Dwg Rev updated | KJ | |

10.08.23

| Item | Qty -141 | Part Number | Description |
|------|-------------|---------------|--|
| 1 | X | D350-748-141 | CROSSTUBE ASSEMBLY (AS 350/355 HI FWD) |
| 2 | 1 | D6017-115 | CROSSTUBE |
| 3 | 2 | D3502-1 | SUPPORT |
| 4 | 2 | D2856-400-710 | ABRASION STRIP |
| 5 | 1 | AELS-1032-225 | INSERT |
| 6 | 1 | NAS1149D0363J | WASHER (OR AN960JD10) |
| 7 | 2 | MS21920-20 | CLAMP (PER DART SPEC. M-MS21920-20) |
| 8 | 1 | MS27039-1-10 | SCREW |

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6017-115
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 006 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 4743
B810-902

RELEASED
2009-10-29

| | | | |
|------------|---|---|--------------|
| E | REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3) | RF | 09.09.30 |
| D | MAG. PARTICLE AND CAD PLATE AS MFD. | CP | 06.10.31 |
| C | ADD CAD PLATING | CP | 06.08.14 |
| B | ADD D6017-115 & PRIME AND PAINT | CP | 06.06.30 |
| A | NEW ISSUE | CP | 06.03.31 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | RF | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | RF | | |
| CHECKED | RF | DRAWING NO. | REV. E |
| MFG. APPR. | RF | D350-748-141 | SHEET 1 OF 4 |
| APPROVED | RF | TITLE | SCALE |
| DE APPR. | RF | CROSSTUBE (AS 350/355 HI FWD) | NTS |
| DATE | 09.09.30 | <small>COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> | |

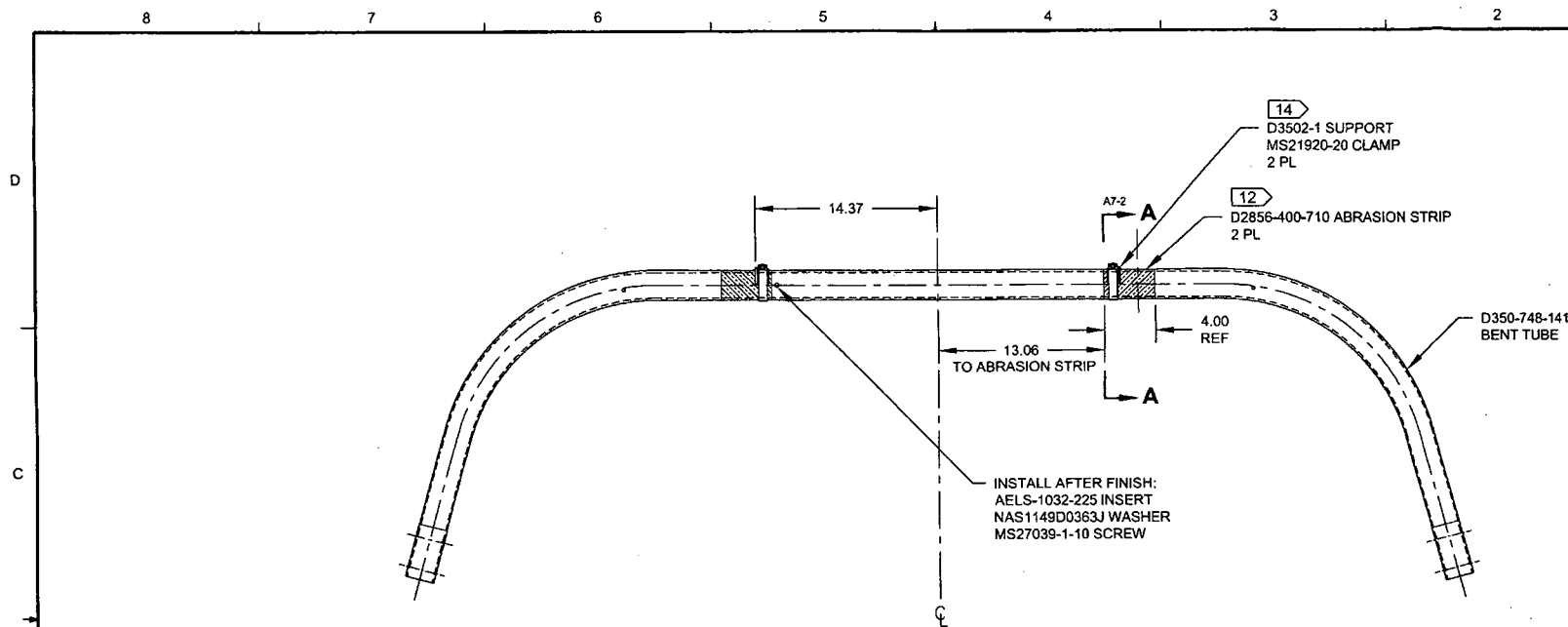
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

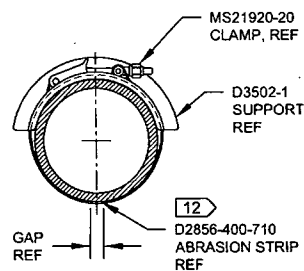
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



**D350-748-141
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 4X

w/o 61763

RELEASE
2009

| | | |
|------------|----------|---|
| DESIGN | Q | DART AEROSP |
| DRAWN | RF | HAWKESBURY, ONTARIO |
| CHECKED | Q | DRAWING NO. |
| MFG. APPR. | S | D350-748-141 |
| APPROVED | AD | TITLE |
| DE APPR. | H | CROSSTUBE (AS 350/355 H |
| DATE | 09.09.30 | COPYRIGHT © 2006 BY DART AEROSP THIS DOCUMENT IS UNCLASSIFIED AND IS NOT TO BE USED FOR ANY PURPOSES OR FOR COMMERCIAL PURPOSES WITHOUT WRITTEN PERMISSION FROM DART AEROSP |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

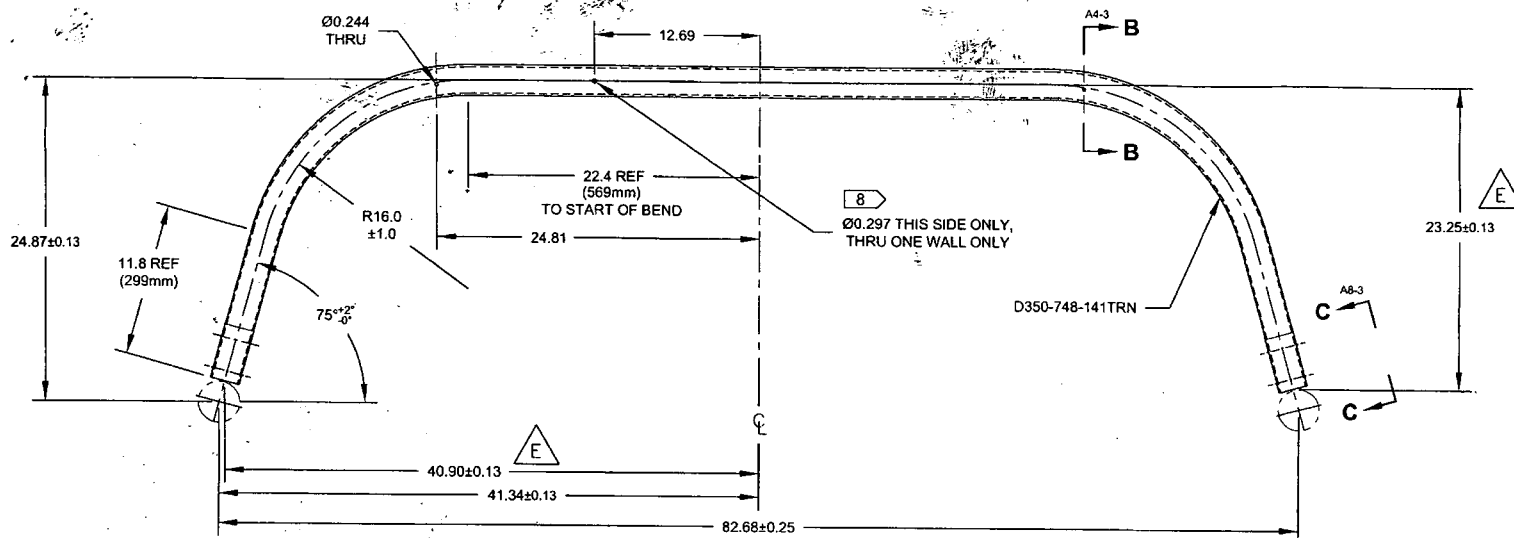
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

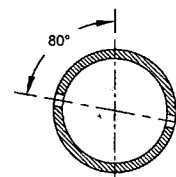
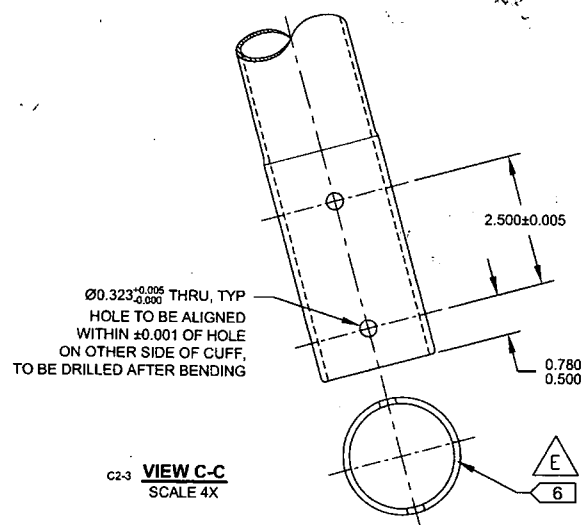
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



D350-748-141
BENDING AND DRILLING DETAIL 10



SECTION B-B D3-3
SCALE 4X

RELEASED
2009-10-29

| | | | |
|--|----------|--|--------------|
| DESIGN | RF | DART AEROSPACE LTD | |
| DRAWN | RF | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | RF | DRAWING NO. | REV. E |
| MFG. APPR. | RF | D350-748-141 | SHEET 3 OF 4 |
| APPROVED | RF | TITLE | SCALE |
| DE APPR. | RF | CROSSTUBE (AS 350/355 HI FWD) | NTS |
| DATE | 09.09.30 | COPYRIGHT © 2006 BY DART AEROSPACE LTD | |
| THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. | | | |

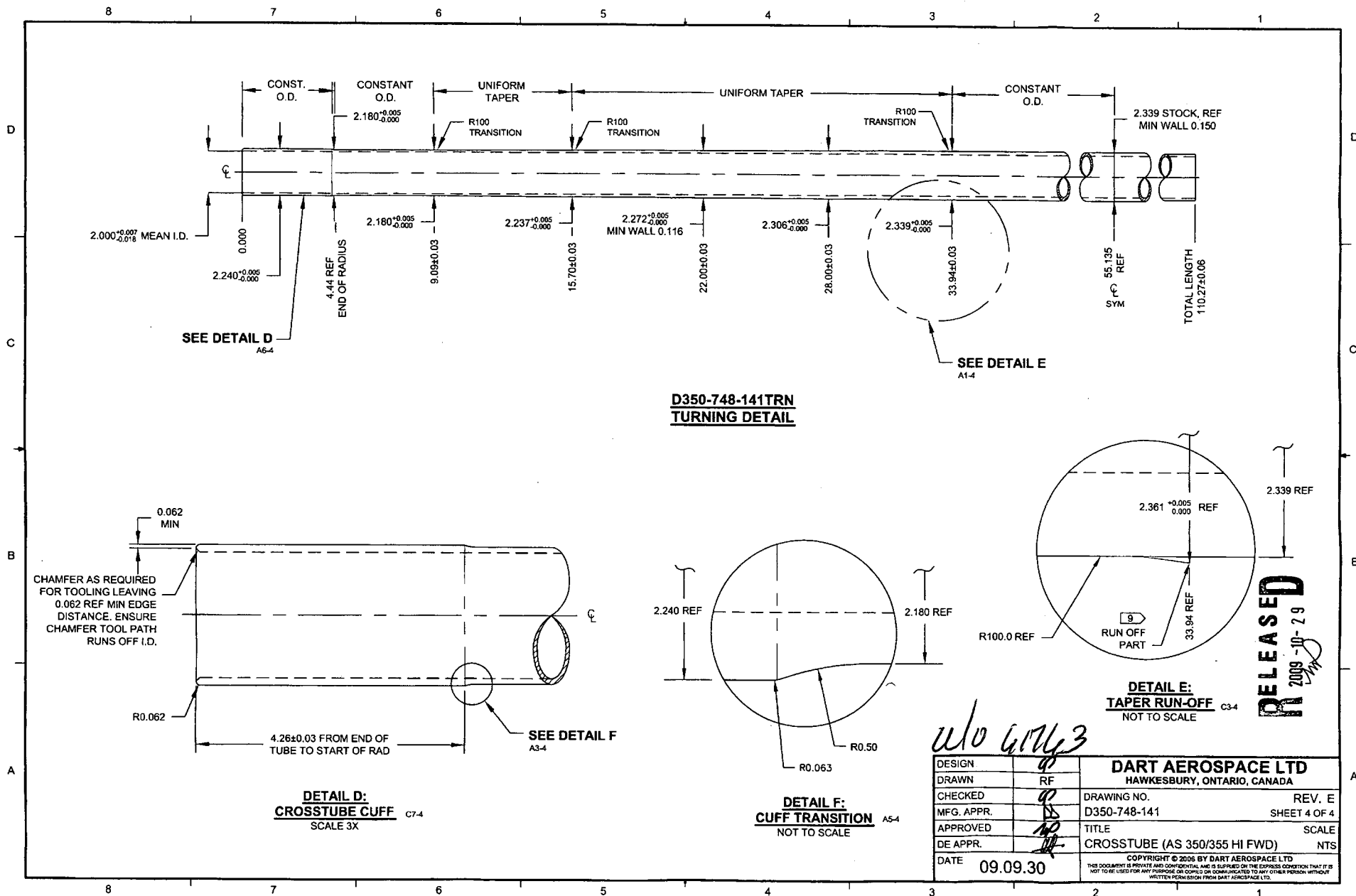
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

L Lacelle

From: David Shepherd [dshepherd@dartaero.com]
Sent: May 11, 2010 12:37 PM
To: 'L Lacelle'; 'Mike Petsche'
Cc: 'Bill Beckett'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com; 'Chantal Lavoie'
Subject: RE: 350 crosstubes

Linda,

As discussed, if the tubes have been structurally tested, it has been documented on the work orders, and Chris has signed off on them, then it is acceptable to me to release the parts.

David

From: L Lacelle [mailto:llacelle@dartaero.com]
Sent: Tuesday, May 11, 2010 8:37 AM
To: 'David Shepherd'; 'Mike Petsche'
Cc: 'Bill Beckett'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com; 'Chantal Lavoie'
Subject: RE: 350 crosstubes

Now that testing is done, can we ship out the batch that as been ready to heat treat?

LL

From: David Shepherd [mailto:dshepherd@dartaero.com]
Sent: April 27, 2010 3:40 PM
To: 'Mike Petsche'
Cc: 'Bill Beckett'; 'L Lacelle'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com
Subject: 350 crosstubes

Mike,

I discussed the 350 crosstube load testing with Bill a little while ago and this plan makes sense to him.

So, my recommendation to clear these crosstubes is to load the fwd crosstubes to 3500 lb and the aft crosstubes to 3000 lb in the deflection test rig and document on the work orders that this test has been completed. Hold max load for 1 minute. Per TP-D350-748-2, these loads represent the maximum load on these crosstubes at gross weight and are below the yield point of the material. I would like to request that Chris Provencal witness these tests and sign off the work orders based on his experience with Dart landing gears. My feeling is that if there is a problem with the parts, it will manifest itself during this load test. I, for one, would feel a lot more confident in testing each crosstube in this manner than relying totally on what Exova has to say. I think it would be very difficult to reach a conclusion on the whole batch on the basis of cracks in two parts from the batch.

I believe that we can accomplish this before next Friday, which also gives us time to hear what Exova has to say in case it has an impact on our decision. So far, what I have seen from Exova shows me that there are fluctuations in the heat treating but the tubes are heat treated to our specification.

For this reason, I believe we should tell DHS that it looks like we will be able to start shipping 350 crosstubes by May 7th pending a successful Engineering test of the material.

David.

No virus found in this incoming message.

Checked by AVG - www.avg.com

Version: 8.5.437 / Virus Database: 271.1.1/2865 - Release Date: 05/11/10 06:26:00

12/06/10



LIQUID PENETRANT TEST REPORT

P- 054925

PAGE 1 OF 1
TIME AM ☒ PM ☐

CLIENT ART AEROSPACE DATE Dec 9/2010
ATTENTION INDIA KACELLE / MANUEL / IN ACUREN JOB NO. 185-10-C987
ADDRESS 1270, ALBER DEEN PO/NO.
HAWKES BURY, ON WORK LOCATION AS ADDRESS
ACCEPTANCE STD. ASIM 1417/CS 1038 REV./DATE 2008
PROJECT Liquid Penetrant Inspection on "CROSSBOW" HIGH AFT
ITEM(S) EXAMINED SEE W.O. # IN RESULTS

JOB DESCRIPTION PERFORMED A WET FLOW INSPECTION BY LIQUID PENETRANT ON LOCK OF THE EXTERNAL SURFACE
PROCEDURE NO. LT-003 REV./DATE 2008 TECHNIQUE NO. LT-003 REV./DATE 2008
PART NO. MATERIAL AL-30 THICKNESS N/A
SCOPE

| TEST DETAILS | | | | | |
|-------------------|--|----------------------------------|--|--|---|
| METHOD | <input checked="" type="checkbox"/> FLUORESCENT | <input type="checkbox"/> VISIBLE | <input checked="" type="checkbox"/> WATER WASH | <input type="checkbox"/> SOLVENT REMOVABLE | <input type="checkbox"/> POST EMULSIFIED |
| FAMILY BRAND | <u>MAC-N-AFLUOR</u> | | BLACK LIGHT S/N | <u>13740</u> | <input checked="" type="checkbox"/> OUTPUT > 1000 u W/CM ² <input type="checkbox"/> AMBIENT < 2 fc |
| PENETRANT | <u>ZL-67</u> | MINIMUM DWELL TIME | <u>10</u> | MIN. | LIGHTING EQUIP. <input checked="" type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE |
| PENETRANT REMOVER | <u>H-20</u> | MINIMUM DRY TIME | <u>>10</u> | MIN. | OTHER |
| DEVELOPER | <u>SKD-32</u> | MINIMUM DWELL TIME | <u>10</u> | MIN. | LIGHT METER S/N |
| DEVELOPER TYPE | <input type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY | CAL DUE DATE <u>FEB 07 2011</u> | | | |

TEST SURFACE
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/ 50°F ☐ 10°C/ 50°F TO 52°C/ 125°F ☐ > 52°C/ 125°F

| RESULTS- | | <input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL | |
|---------------------------|-------|--|-----|
| # | ITEMS | | |
| 1 | 2 | CROSSBOW - W.O. ID 63746 | ✓ |
| 2 | 3 | 63747 | ✓ |
| 3 | 4 | 63748 | ✓ |
| 4 | 5 | 63749 | ✓ |
| 5 | 6 | 61763 | ✓ |
| 6 | 7 | 61764 | ✓ |
| 7 | 8 | 61765 | ✓ |
| 8 | | 61766 | ✓ |
| B | A | SEE NOTE → | BA |
| ITEMS | | ACC. | 2G1 |
| SX MOUNTS - W.O. ID 61890 | | ✓ | |

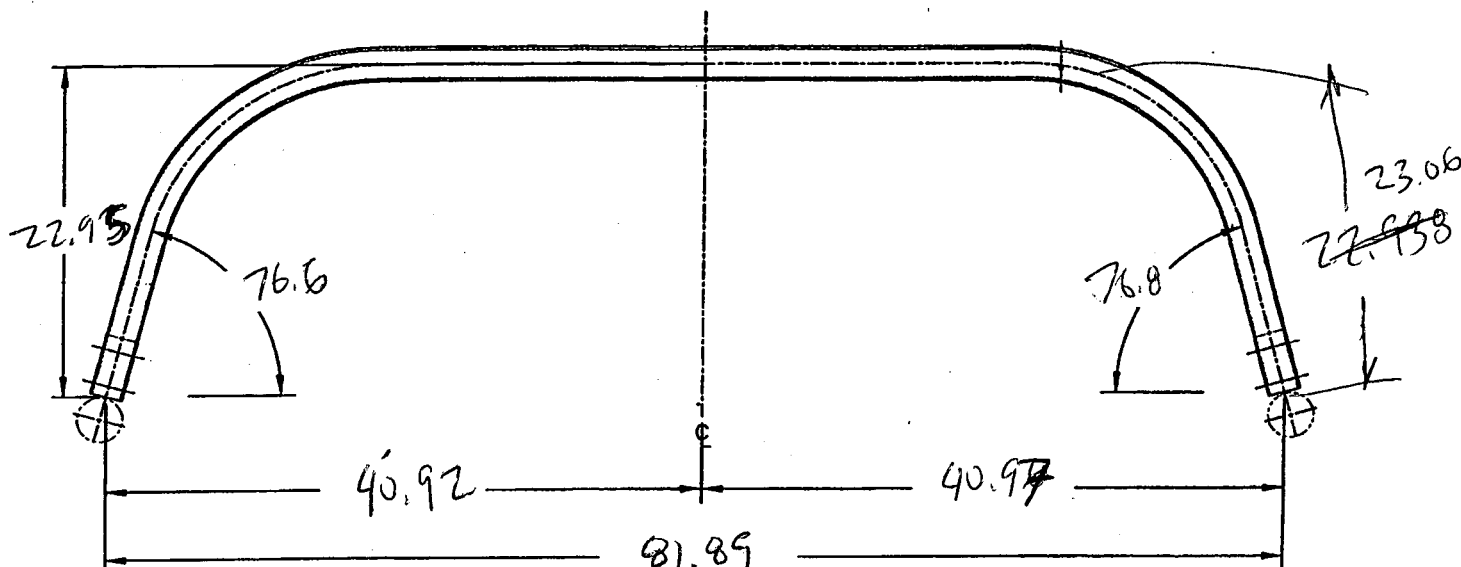
NOTE: B = BEFORE DEFLATION TEST
A = AFTER DEFLATION TEST
ITEM ID: D350-748-201 (ITEMS 1, 2, 3, 4)
ITEM ID: D350-748-101 (ITEMS 5, 6, 7, 8)
ITEM ID: D3687-3 (MOUNTS)

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.
Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

| | | |
|----------------------------|--|--|
| SIGNATURES | | DTR # <u>E63104</u> |
| CLIENT REPRESENTATIVE | <u>John Talley</u> | REPORT REVIEWED BY: |
| TECHNICIAN (SIGNATURE): | <u>[Signature]</u> | NAME INITIALS |
| NAME (PRINT): | <u>VES DESKISER</u> | |
| 1 st TECHNICIAN | CGSB LEVEL <u>2</u> SNT LEVEL <u>2</u> | 2 nd TECHNICIAN |
| CGSB REG. NO. <u>3049</u> | | CGSB LEVEL <u>---</u> SNT LEVEL <u>---</u> |
| CGSB REG. NO. <u>---</u> | | CGSB REG. NO. <u>---</u> |

| | | | |
|---|--|--------------|--------------|
| DART AEROSPACE LTD | | Work Order: | 61763 |
| Description: Crosstube High Fwd (AS350/355) | | Part Number: | D350-748-101 |
| Inspection Dwg: D350-748-141 Rev: E | | Page 1 of 1 | |

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 23.13 | 23.37 |
| 1/2 Span | 40.78 | 41.02 |
| Angle | 75 | 77 |
| Total Span | 81.56 | 82.04 |



| Comments |
|---------------------------|
| FOLLOWING DEFLECTION TEST |
| ACCEPTABLE 10.12.09 |

| | |
|-----------------|----------|
| QC15 Inspection | 10.12.09 |
| Date | |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------------|------------|----------|
| A | 07.02.06 | New Issue | KJ/JM | |
| B | 10.08.23 | Dwg Rev updated | KJ | |

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Jan-14-2011

CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St
Hawksbury, ON K6A 1K7

W/O #: 100751

INVOICE #: 52907

**CONTRACT OR
PURCHASE ORDER #**

PO13128

DESCRIPTION: SKID

P/N # d350-748-101

S/N # B61763

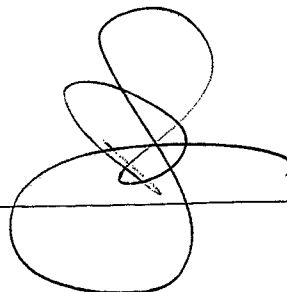
QTY 1

**STRESS RELIEF BAKE @375 DEG. BAKE HEAT CHART #10-1335.
MPI INSPECTED IAW ASTM-E-1444. CADMIUM PLATED IAW AMS-
QQ-P-416C, TYPE 2 YELLOW, CLASS 1. BAKE HEAT CHART #11-5.**

Sulor/24

**CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order.**

Approved Inspector:



RAPPOR D'INSPECTION NON DESTRUCTIVE

(SUITE)

REPORT# P-05496

PAGE 2 DE 2

CLIENT DART AEROSPACE
ATTENTION LINDA LACELLE / CHANTAGE / IAN

DATE JAN/26/2011
ACUREN W/O : 188-11-02103

HEURE ☒ AM ☐ PM

RÉSULTATS

☐ MÉTRIQUE ☒ IMPÉRIALE

| ITEM | COMMENTS | ACCEPT | REJECT | ITEM ID |
|------|--------------------------|--------|--------|-----------------------------|
| 8 | CROSS TUBE W.O. ID 61763 | ✓ | | ITEM ID: D350-748-101(H.F.) |
| 9 | CROSS TUBE W.O. ID 61764 | ✓ | | D350-748-101(H.F.) |
| 10 | CROSS TUBE W.O. ID 61765 | ✓ | | D350-748-101(H.F.) |
| 11 | CROSS TUBE W.O. ID 61766 | ✓ | | D350-748-101(H.F.) |
| 12 | CROSS TUBE W.O. ID 61767 | ✓ | | D350-748-201(H.A.) |
| 13 | CROSS TUBE W.O. ID 61768 | ✓ | | D350-748-201(H.A.) |
| 14 | CROSS TUBE W.O. ID 61769 | ✓ | | D350-748-201(H.A.) |
| 15 | CROSS TUBE W.O. ID 61770 | ✓ | | D350-748-201(H.A.) |

BT 11-01-26

NO REJECTABLE INDICATION WAS DETECTED, AS PER APPLICABLE STANDARD

Étendue des services

L'entente selon laquelle le Groupe Acuren Inc. Exécute les services ne concerne que les énoncés par écrit. En aucune circonstance ces services ne s'étendent au-delà de l'exécution des services demandés. Il est entendu que toutes les descriptions, les observations et les expressions d'opinions faites par Acuren reflètent les opinions ou les observations de l'entreprise fondées sur l'information et les hypothèses fournies par le propriétaire/opérateur, et elles ne constituent pas des déclarations ou des garanties ou ne peuvent être interprétées comme constituant. Le groupe Acuren Inc. N'assume aucune des responsabilités du propriétaire/opérateur, et le propriétaire/opérateur conserve la responsabilité entière des décisions prises en matière d'ingénierie, de fabrication, de réparation et d'usage à partir de l'information ou des données fournies par Acuren en rapport avec les services décrits dans les présentes ne peuvent excéder le coût des services rendus.

Norme de Diligence

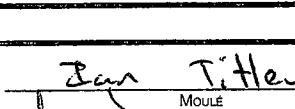

Dans l'exécution des services, le Groupe Acuren inc. Applique le degré de diligence, le soin et la compétence normalement exercés dans des circonstances semblables par d'autres fournisseurs de ce type de services opérant dans la même localité ou dans une localité similaire. Aucune autre garantie, implicite ou explicite, n'est faite ou voulue par le Groupe Acuren Inc.

SIGNATURES

REPRÉSENTANT CLIENT

TECHNICIEN (SIGNATURE):

NOM (MOULIÉ):


MOULÉ

TECHNICIEN
ONGC NIVEAU 2 SNT NIVEAU 2
ONGC N° REGISTRATION 3049

FTJ#: 663121

RAPPORT

RÉVISÉ PAR:

NOM

INITIALES